UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/697,974	10/31/2003	Chung C. Yang	200315473-1	8991

22879 7590 10/05/2005

HEWLETT PACKARD COMPANY
P O BOX 272400, 3404 E. HARMONY ROAD
INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS, CO 80527-2400

EXAMINER	
FEGGINS, KRISTAL J	

ART UNIT	PAPER NUMBER
2861	

DATE MAILED: 10/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/697,974	YANG ET AL.	
	Examiner	Art Unit	
	K. Feggins	2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) _____ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,6-23,28-36 and 38-42* is/are rejected.

7)☒ Claim(s) *3-5,24-27,37 and 43-46* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *5/9/05 & 11/26/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☒ Other: *IDS mail date 10/3103*.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 10 recites the limitation "the material" in line 1. There is insufficient antecedent basis for this limitation in the claim.

3. Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 10, recites a material comprising of a semiconductor material, a metal, ...etc., however Examiner is not sure if Applicant is referring the ink material or another different material.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 6-8, 11, 13-23, 28, 29, 32, 33, 35-36, 39-42 are rejected under 35 U.S.C. 102(b) as being anticipated by Behun (US 4,620,198).

Behun disclose the following claimed limitations:

* regarding claim 1, a system for delivering material onto a substrate (Abstract);

* said system comprising a jetting assembly (Abstract, fig 1);

* a reservoir containing the material/recording material, 19), said reservoir/39/ having a nozzle through which the material is expelled from the reservoir;

* an arcuate section positioned between the reservoir and the nozzle/2/, wherein the material is configured to travel from the reservoir, through the arcuate section/31, flexible conduit/, and through the nozzle (fig 1);

* a means for applying pressure on the material contained in the reservoir, wherein the material is expelled from the reservoir through application of pressure by the means for applying pressure to thereby create a column of the material from the nozzle (col 4, lines 60-68, col 5, lines 1-14, fig 1);

* a means for producing pressure modulations located proximate the nozzle, the means for producing pressure modulations being configured to substantially regulate formation of droplets from the column of the material (piezo device, col 4, lines 60-68, col 5, lines 1-14, fig 1);

* a charging ring/6/, wherein said droplets are configured to pass through the charging ring, and wherein the charging ring is configured to induce an electrical charge to selective ones of the droplets (col 5, lines 1-14, fig 1);

* one or more deflection plates/10, 12/ for altering a trajectory of the charged droplets (col 5, lines 15-21, fig 1).

* regarding claim 2, wherein said arcuate section is configured to substantially prevent drying of the material in the nozzle (passage for ink to travel to the nozzle from

the reservoir, being dry inherent feature for the ink to be able to travel from the reservoir to the nozzle).

* regarding claim 6, a collection plate positioned between the one or more deflection plates and the substrate, said collection plate/gutter, 9/ being configured to receive unwanted droplets, and wherein said collection plate/gutter, 9/ is configured to direct received droplets to at least one of a waste area and the reservoir (fig 1, droplets from the gutter are routed back to the reservoir).

* regarding claim 7, wherein the one or more deflection plates are configured to alter the trajectories of unwanted droplets into the collection plate.

* regarding claim 8, wherein the one or more deflection plates/10, 12/ are configured to alter the trajectories of the droplets to various sections of the substrate (col 5, lines 15-21, fig 1).

* regarding claim 11, wherein the reservoir comprises a re-filling device configured to enable material to be inserted into the reservoir (ink from the gutter replenishes the reservoir, fig 1).

* regarding claim 13, a controller(27) for controlling the means for applying pressure, the means for producing pressure modulations, the charging ring and the deflection plates (fig 1).

regarding claims 14, 28 & 33, wherein the means for producing pressure modulations comprises a PZT transducer/piezo device, 4/(col 5, lines 7-11, fig 1).

* regarding claim 15, a plurality of jetting assemblies/plurality of nozzles/ (col 4, lines 60-68, col 5, lines 1-14, fig 1);

* a plurality of charging rings, wherein droplets from the plurality of jetting assemblies are configured to pass through respective ones of the plurality of charging rings (col 4, lines 60-68, col 5, lines 1-14, fig 1);

* a plurality of deflection plates for altering the trajectories of the droplets from respective ones of the jetting assemblies (col 4, lines 60-68, col 5, lines 1-14, fig 1).

* regarding claim 16, wherein the plurality of jetting assemblies contain different materials/different colored inks/ with respect to each other (col 4, lines 60-68, col 5, lines 1-14, fig 1);

* regarding claim 17, wherein the plurality of jetting assemblies are positioned to substantially simultaneously deposit material onto the substrate (col 4, lines 60-68, col 5, lines 1-14, col 6, lines 57-69, col 7, lines 1-4, fig 1).

* regarding claim 18, a method for depositing a material onto a substrate (Abstract, fig 1);

* applying a pressure onto a material located in a reservoir, wherein said pressure causes the material to flow through a arcuate section and out of a nozzle in a fluid column (col 4, lines 60-68, col 5, lines 1-14, fig 1);

* creating pressure modulation/7/ through the fluid column to control formation of droplets from the fluid column, wherein the droplets travel along a flight path from the fluid column (col 4, lines 60-68, col 5, lines 1-14, fig 1);

* electrically charging/6/ one or more of the droplets (col 5, lines 1-14, fig 1);

* varying the flight path/deflecting, 10, 12/ of at least one of the one or more charged droplets (col 5, lines 15-21, fig 1).

* regarding claim 19, wherein the step of varying the flight path of at least one of the one or more charged droplets comprises inducing an electrostatic potential on the at least one of the one or more charged droplets to vary the flight path/deflecting the flight path or trajectories/ (col 5, lines 15-21, col 6,lines 57-69, col 7, lines 1-26, fig 1).

* regarding claim 20, determining whether at least one of the one or more charged droplets are to be discarded (col 5, lines 15-21, col 6,lines 57-69, col 7, lines 1-26, fig 1).

* wherein the step of varying the flight path of at least one of the one or more charged droplets comprises varying the flight path of one or more charged droplets to be discarded to direct the one or more charged droplets to be discarded to a collection plate/gutter, 9/ (col 5, lines 15-21, col 6,lines 57-69, col 7, lines 1-26, fig 1). (col 4, lines 60-68, col 5, lines 1-14, fig 1);

* regarding claim 21, wherein the step of varying the flight path of at least one of the one or more charged droplets comprises varying the flight path of at least one of the one or more charged droplets having a charge/mass ratio falling outside of a predetermined charge/mass ratio range (col 5, lines 15-21, 53-69, col 6, lines 57-69, col 7, fig 1).

* regarding claim 22, determining one or more positions on the substrate for the one or more droplets to impact col 6, lines 57-69, col 7, lines 1-5, fig 1);

* directing at least one of the one or more droplets to impact the one or more positions on the substrate (col 6, lines 57-69, col 7, lines 1-5, fig 1).

* regarding claim 23, determining whether a trajectory of the at least one of the one or more droplets is to be altered (col 5, lines 15-21, 53-69, col 6, lines 57-69, col 7, fig 1).

* wherein the step of directing the at least one of the one or more droplets to impact the one or more positions comprises varying the trajectory of the at least of the

one or more droplets to vary the position of impact of the at least one of the one or more droplets on the substrate (col 5, lines 15-21, col 6,lines 57-69, col 7, lines 1-26, fig 1).

* regarding claims 29, wherein the step of applying a pressure onto a material comprises applying a substantially uniform pressure onto the material (there is only one driver used to applied pressure (col 5, lines 15-51, fig 1).

* regarding claim 31, replacing the reservoir with one or more of a reservoir containing the material and a reservoir containing a different material.

* regarding claim 32, a system for delivering material onto a substrate (Abstract, fig 1),

* said system comprising means for housing/reservoir/ the material/ink/ (fig 1);

* means for applying pressure/piezoelectric device/ on the material/ink/ (fig 1, col 4, lines 60-68, col 5, lines 1-14, fig 1);

* means for expelling the material/ink/ from the means for housing the material/ (col 4, lines 60-68, col 5, lines 1-14, fig 1);

* means for channeling the material from the means for housing/reservoir/ to the means for expelling the material/piezo device stimulates the ink/, wherein the means for channeling the material comprises an arcuate shape/material travels from the reservoir to the nozzle which has a curving shape, flexible conduit, 42/ (fig 1);

* means for creating substantially uniform droplets from a column of material expelled from the means for expelling the material (fig 1, col 4, lines 60-68, col 5, lines 1-51, fig 1);

* means for selectively charging the droplets/6/ (fig 1).

* regarding claim 35, means for deflecting one or more of the charged droplets. (fig 1, col 4, lines 60-68, col 5, lines 1-51, fig 1);

* regarding claim 36, means for moving the substrate in along at least one dimensional plane/steppable recording medium/ (Abstract, fig 1).

* regarding claim 39, a computer readable storage medium on which is embedded one or more computer programs, said one or more computer programs implementing a method for depositing a material onto a substrate, said one or more computer programs comprising a set of instructions for (the preamble must breathe life into the body of the claim in order to be given patenable weight);

* applying a pressure onto a material located in a reservoir, wherein said pressure causes the material to flow through an arcuate section and out of a nozzle in a fluid column (col 4, lines 60-68, col 5, lines 1-14, fig 1);

* creating pressure modulation through the fluid column to control formation of droplets from the fluid column, wherein the droplets travel along a flight path from the fluid column (piezo device, col 4, lines 60-68, col 5, lines 1-14, fig 1);

* electrically charging/6/ one or more of the droplets (col 5, lines 1-14, fig 1);

* varying the flight path of at least one or more charged droplets (col 5, lines 15-21, col 6, lines 57-69, col 7, lines 1-10, fig 1).

* regarding claim 40, said one or more computer programs/controller/ further comprising a set of instructions for (fig 1) determining whether at least one of the one or more charged droplets are to be discarded/ gutter, 9/ (col 4, lines 60-68, col 5, lines 1-21, col 6, lines 57-69, col 7, lines 1-26, fig 1).

* wherein the step of varying the flight path of at least one of the one or more charged droplets comprises varying the flight path of one or more charged droplets to be discarded to direct the one or more charged droplets to be discarded to a collection plate/gutter, 9/ is configured to direct received droplets to at least one of a waste area and the reservoir (fig 1, droplets from the gutter are routed back to the reservoir).

* regarding claim 41, said one or more computer programs further comprising a set of instructions for/controller/ determining one or more positions on the substrate for the one or more droplets to impact;

* directing at least one of the one or more droplets to impact the one or more positions on the substrate (col 6, lines 43-69, col 7, 1-5, fig 1).

* regarding claim 42, said one or more computer programs further comprising a set of instructions for determining whether a trajectory of the at least one of the one or more droplets is to be altered (col 6, lines 43-69, col 7, 1-5, fig 1).

* wherein the step of directing the at least one of the one or more droplets to impact the one or more positions comprises varying the trajectory of the at least of the one or more droplets to vary the position of the at least one droplet on the substrate (col 6, lines 43-69, col 7, 1-5, fig 1).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 9 & 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Behun (US 4,620,198) in view of Horike (US 4,281,332).

Behun discloses all of the claimed limitations except for the following:

* regarding claims 9 & 34, a heating mechanism configured to supply heat to the material contained in the reservoir; means for heating the material housed in the means for housing.

Horike discloses the following claimed limitations:

* regarding claims 9 & 34, a heating mechanism configured to supply heat to the material contained in the reservoir; means for heating the material housed in the means

for housing/reservoir, tank/ (col 11, lines 21-26, 44-50, col 12, lines 50-54, 59-62) for the purpose of maintaining ink temperature.

It would have been obvious at the time of the invention was made to a person having ordinary skill in the art to utilize a heating mechanism configured to supply heat to the material contained in the reservoir; means for heating the material housed in the means for housing, taught by Horike into Behun for the purpose of maintaining ink temperature.

7. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Behun (US 4,620,198) in view of Hertz (US 3,916,412).

Behun disclose all the claimed limitations except for the following:

* regarding claim 10, wherein the material comprises one or more of a semiconductor material, a metal, a dielectric, a passivation material, a protective coating material, an etchant, a dopant, and a reactant.

Hertz (US 3916412) disclose the following claimed limitations:

regarding claim 10, wherein the material comprises ***one*** or more of a semiconductor material, a metal, a dielectric, a passivation material, a protective coating material, an etchant, a dopant, and ***a reactant***/chemical reactants/ for the purpose of using recording liquids other than ink and recording receiving means of a material other than paper may be used.

It would have been obvious at the time of the invention was made to a person having ordinary skill in the art to utilize a material having one or more of a

semiconductor material, a metal, a dielectric, a passivation material, a protective coating material, an etchant, a dopant, and a reactant, as taught by Hertz into Behun for the purpose of using recording liquids other than ink and recording receiving means of a material other than paper may be used.

8. Claims 12, 30, 31 & 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Behun (US 4,620,198) in view of Keeling et al. (US 5,481,288).

Behun disclose all the claimed limitations except for the following:

* regarding claim 12, wherein the reservoir comprises a separate component and wherein the reservoir is separately replaceable

* regarding claims 30 & 38, re-filling the reservoir with one or more of the material and a different material.

* regarding claim 31, replacing the reservoir with one or more of a reservoir containing the material and a reservoir containing a different material.

Keeling et al. (US 5481288) disclose the following feature:

* regarding claim 12, wherein the reservoir comprises a separate component and wherein the reservoir is separately replaceable (col 7, lines 24-52, fig 4) for the purpose of providing a warning of low ink level.

* regarding claims 30 & 38, re-filling the reservoir with one or more of the material (one ink material color) and a different material (another color of ink material) (col 7, lines 24-52, fig 4) for the purpose of replenishing ink colors.

* regarding claim 31, replacing the reservoir with one or more of a reservoir containing the material/one ink color material/ and a reservoir containing a different material/another ink color material/ (col 7, lines 24-52, fig 4) for the purpose of replenishing ink colors.

It would have been obvious at the time of the invention was made to a person having ordinary skill in the art to utilize a reservoir having a separate component and wherein the reservoir is separately replaceable; re-filling the reservoir with one or more of the material and a different material; and replacing the reservoir with one or more of a reservoir containing the material and a reservoir containing a different material, as taught by Keeling into Behun for the purpose of purpose of providing a warning of low ink level and replenishing ink colors.

Allowable Subject Matter

9. Claims 3-5, 24-27, 37 & 43-46 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Communication With The USPTO

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to K. Feggins whose telephone number is 571-272-2254. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Talbott Dave can be reached on 571-272-1934. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

9/05

K. FEGGINS
PRIMARY EXAMINER